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PRELIMINARY REPORT
INDUSTRY SERIES

1987

Census of Manufactures

MC87-I-35E(P)
Issued August 1989

GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT

Industries 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, and 3569

INTRODUCTION

This report presents preliminary statistics from the 1987 Census of Manufactures for those establishments classified in the industries listed above. These data will be superseded by a more comprehensive final paperbound report. The method of data collection and use of administrative data are discussed in detail in the appendix.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The definitions of these industries are the same as those used in the 1987 Standard Industrial Classification (SIC) Manual.¹

INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT

In the 1987 Census of Manufactures, Industry 3561, Pumps and Pumping Equipment, had employment of 35.8 thousand.

The total value of shipments for establishments classified in this industry was \$4.1 billion. The products primary to this industry appear in table 2 and aggregated to \$3.5 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$1.9 billion in 1987. Data on specific materials consumed appear in table 3.

¹Standard Industrial Classification Manual: 1987. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 3562, BALL AND ROLLER BEARINGS

In the 1987 Census of Manufactures, Industry 3562, Ball and Roller Bearings, had employment of 37.1 thousand. The employment figure was 15 percent below the 43.8 thousand reported in 1982. Compared with 1986, employment in 1987 decreased 3 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was \$3.8 billion. The products primary to this industry appear in table 2 and aggregated to \$3.6 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$1.5 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3563, AIR AND GAS COMPRESSORS

In the 1987 Census of Manufactures, Industry 3563, Air and Gas Compressors, had employment of 23.6 thousand. The employment figure was 26 percent below the 31.8 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was \$3.0 billion. The products primary to this industry appear in table 2 and aggregated to \$2.6 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$1.6 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3564, BLOWERS AND FANS

In the 1987 Census of Manufactures, Industry 3564, Blowers and Fans, had employment of 24.7 thousand. The employment figure was 17 percent below the 29.8 thousand reported in 1982.

Address inquiries to Bureau of the Census, Industry Division, Washington, DC 20233, or call Jo Anna Nguyen (301) 763-7304.



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The total value of shipments for establishments classified in this industry was \$2.3 billion. The products primary to this industry appear in table 2 and aggregated to \$2.1 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$983.3 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3565, PACKAGING MACHINERY

In the 1987 Census of Manufactures, Industry 3565, Packaging Machinery, had employment of 21.3 thousand.

The total value of shipments for establishments classified in this industry was \$2.1 billion. The products primary to this industry appear in table 2 and aggregated to \$2.0 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$760.4 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS

In the 1987 Census of Manufactures, Industry 3566, Speed Changers, Drives, and Gears, had employment of 17.6 thousand. The employment figure was 27 percent below the 24.1 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was \$1.5 billion. The products primary to this industry appear in table 2 and aggregated to \$1.5 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$551.5 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS

In the 1987 Census of Manufactures, Industry 3567, Industrial Furnaces and Ovens, had employment of 16.0 thousand. The employment figure was 1 percent below the 16.1 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was \$1.4 billion. The products primary to this industry appear in table 2 and aggregated to \$1.2 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$603.5 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.

In the 1987 Census of Manufactures, Industry 3568, Power Transmission Equipment, N.E.C., had employment of 21.7 thousand. The employment figure was 19 percent below the 26.9 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was \$2.0 billion. The products primary to this industry appear in table 2 and aggregated to \$2.1 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$773.7 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.

In the 1987 Census of Manufactures, Industry 3569, General Industrial Machinery, N.E.C., had employment of 39.2 thousand.

The total value of shipments for establishments classified in this industry was \$3.7 billion. The products primary to this industry appear in table 2 and aggregated to \$3.8 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$1.6 billion in 1987. Data on specific materials consumed appear in table 3.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the tables in this publication:

-	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

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Census/ASM		
Durables	Kenneth Hansen	(301) 763-7304
Nondurables	Michael Zampogna	(301) 763-2510
Current Industrial Reports		
Durables	Malcolm Bernhardt	(301) 763-2518
Nondurables	Thomas Flood	(301) 763-5911
Import/Export Publications	Foreign Trade Division	(301) 763-5140
Industry Analysis and Forecasts	International Trade Administration	(202) 377-4356

Table 1. Historical Statistics for the Industry: 1987 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Year¹	All establishments³			All employees		Production workers			Value added by manufac- ture⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	End-of- year invent- ories⁴ (million dollars)	Ratios	
	Com- panies² (no.)	Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Special- ization (per- cent)	Cover- age (per- cent)
INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT⁵															
1987 Census ----	(NA)	405	228	35.8	983.6	20.1	39.4	472.1	2 248.1	1 885.4	4 134.7	102.0	1 140.1	(NA)	(NA)
INDUSTRY 3562, BALL AND ROLLER BEARINGS															
1987 Census ----	(NA)	174	121	37.1	955.4	29.3	60.2	721.0	2 237.1	1 521.3	3 765.6	154.0	862.7	(NA)	(NA)
1986 ASM ----	(NA)	(NA)	(NA)	38.4	961.2	30.3	60.6	709.5	2 159.9	1 402.3	3 597.3	173.0	870.6	(NA)	(NA)
1985 ASM ----	(NA)	(NA)	(NA)	39.6	969.6	31.1	60.8	715.3	2 220.4	1 410.2	3 679.3	138.7	886.4	(NA)	(NA)
1984 ASM ----	(NA)	(NA)	(NA)	42.4	1 026.5	34.0	66.7	762.6	2 222.0	1 623.4	3 775.8	126.8	935.1	(NA)	(NA)
1983 ASM ----	(NA)	(NA)	(NA)	37.7	863.7	29.9	58.4	635.2	1 655.3	1 272.0	2 964.6	114.7	806.9	(NA)	(NA)
1982 Census ----	109	162	116	43.8	910.4	33.6	61.6	647.8	1 849.1	1 220.0	3 149.5	164.8	891.0	96	99
1981 ASM ----	(NA)	(NA)	(NA)	53.3	1 091.4	42.4	83.0	825.6	2 251.3	1 686.6	3 916.7	186.3	855.3	(NA)	(NA)
1980 ASM ----	(NA)	(NA)	(NA)	52.6	988.7	42.3	83.1	757.9	2 022.8	1 493.6	3 449.0	245.1	814.4	(NA)	(NA)
1979 ASM ----	(NA)	(NA)	(NA)	53.3	955.0	43.1	87.3	738.4	1 875.6	1 570.8	3 411.2	140.0	746.4	(NA)	(NA)
1978 ASM ----	(NA)	(NA)	(NA)	52.7	858.8	43.2	86.9	665.3	1 663.0	1 330.4	2 946.3	122.0	687.6	(NA)	(NA)
1977 Census ----	102	149	104	50.6	752.6	41.3	82.4	579.9	1 472.7	1 139.9	2 567.3	132.9	621.7	96	98
1976 ASM ----	(NA)	(NA)	(NA)	49.2	687.1	39.9	79.6	524.3	1 327.5	968.6	2 282.2	87.4	562.9	(NA)	(NA)
1975 ASM ----	(NA)	(NA)	(NA)	50.0	627.9	40.2	78.8	475.8	1 208.8	911.5	2 106.7	92.1	553.7	(NA)	(NA)
1974 ASM ----	(NA)	(NA)	(NA)	55.3	658.4	45.0	92.5	509.5	1 296.0	893.2	2 099.8	109.8	563.1	(NA)	(NA)
1973 ASM ----	(NA)	(NA)	(NA)	54.3	612.0	43.9	91.6	472.2	1 114.8	746.8	1 845.3	73.1	435.4	(NA)	(NA)
1972 Census ----	99	135	93	50.9	525.5	41.4	83.4	403.7	931.3	610.4	1 530.5	51.3	398.5	94	99
INDUSTRY 3563, AIR AND GAS COMPRESSORS															
1987 Census ----	(NA)	258	136	23.6	642.9	12.3	24.4	289.4	1 423.9	1 599.0	3 018.4	66.1	922.2	(NA)	(NA)
1986 ASM ----	(NA)	(NA)	(NA)	23.3	640.1	12.1	23.7	289.4	1 392.7	1 419.0	2 817.5	68.0	813.5	(NA)	(NA)
1985 ASM ----	(NA)	(NA)	(NA)	26.8	681.3	14.7	28.3	325.3	1 557.1	1 481.4	3 077.5	110.3	842.2	(NA)	(NA)
1984 ASM ----	(NA)	(NA)	(NA)	27.8	695.0	15.3	29.9	335.9	1 586.8	1 507.3	3 108.9	115.3	902.2	(NA)	(NA)
1983 ASM ----	(NA)	(NA)	(NA)	26.2	606.1	13.8	25.9	286.1	1 347.3	1 328.2	2 883.4	94.8	903.0	(NA)	(NA)
1982 Census ----	239	282	144	31.8	709.3	17.3	34.1	344.0	1 470.1	1 698.3	3 270.0	118.1	985.6	90	91
1981 ASM ----	(NA)	(NA)	(NA)	32.7	701.9	19.0	38.1	367.3	1 635.6	1 597.9	3 185.1	117.6	901.5	(NA)	(NA)
1980 ASM ----	(NA)	(NA)	(NA)	34.1	664.6	20.3	41.0	354.8	1 616.1	1 499.9	3 050.6	89.5	863.7	(NA)	(NA)
1979 ASM ----	(NA)	(NA)	(NA)	35.9	625.7	21.6	43.9	341.8	1 560.3	1 338.3	2 854.2	71.4	819.9	(NA)	(NA)
1978 ASM ----	(NA)	(NA)	(NA)	32.9	536.2	19.8	39.9	299.6	1 347.5	1 087.4	2 341.7	81.2	724.3	(NA)	(NA)
1977 Census ----	148	175	103	32.0	465.6	19.1	38.2	255.2	1 145.5	953.3	2 075.6	55.8	610.9	88	89
1976 ASM ----	(NA)	(NA)	(NA)	26.8	358.1	16.3	31.9	195.7	878.8	865.0	1 736.9	46.4	551.4	(NA)	(NA)
1975 ASM ----	(NA)	(NA)	(NA)	27.3	342.5	16.9	33.3	182.2	811.1	738.8	1 509.1	42.1	539.9	(NA)	(NA)
1974 ASM ----	(NA)	(NA)	(NA)	30.5	355.4	19.0	37.5	195.0	786.0	697.2	1 376.5	33.9	533.0	(NA)	(NA)
1973 ASM ----	(NA)	(NA)	(NA)	24.5	269.4	15.0	28.4	143.7	560.5	491.7	1 012.3	19.8	348.4	(NA)	(NA)
1972 Census ----	55	84	64	22.9	226.6	13.5	27.2	117.5	467.5	397.0	858.4	15.3	286.7	83	90
INDUSTRY 3564, BLOWERS AND FANS															
1987 Census ----	(NA)	500	238	24.7	542.2	15.9	32.3	296.1	1 278.4	983.3	2 253.4	46.5	337.1	(NA)	(NA)
1986 ASM ----	(NA)	(NA)	(NA)	26.3	575.6	17.5	34.5	325.4	1 155.5	1 034.5	2 239.1	53.6	334.6	(NA)	(NA)
1985 ASM ----	(NA)	(NA)	(NA)	26.2	538.0	17.7	33.4	301.6	1 198.2	947.5	2 149.7	42.6	351.6	(NA)	(NA)
1984 ASM ----	(NA)	(NA)	(NA)	26.4	533.7	17.8	34.4	305.7	1 169.7	955.9	2 119.4	47.9	372.5	(NA)	(NA)
1983 ASM ----	(NA)	(NA)	(NA)	26.8	528.8	16.9	32.6	280.5	1 131.6	915.8	2 055.9	34.7	366.6	(NA)	(NA)
1982 Census ----	450	502	240	29.8	553.6	19.1	37.2	306.0	1 160.0	999.8	2 173.5	57.1	388.7	88	92
1981 ASM ----	(NA)	(NA)	(NA)	30.1	517.6	19.7	39.0	296.5	1 069.5	966.7	2 033.4	40.1	314.9	(NA)	(NA)
1980 ASM ----	(NA)	(NA)	(NA)	31.0	483.0	20.6	39.9	282.2	966.7	949.1	1 908.1	41.7	307.1	(NA)	(NA)
1979 ASM ----	(NA)	(NA)	(NA)	31.1	450.4	21.0	41.7	264.0	914.6	836.8	1 737.5	36.9	294.4	(NA)	(NA)
1978 ASM ----	(NA)	(NA)	(NA)	29.0	401.3	19.6	39.0	232.0	817.9	718.9	1 528.6	36.8	249.5	(NA)	(NA)
1977 Census ----	432	482	198	28.0	356.8	18.6	36.7	209.6	776.7	662.8	1 430.8	37.5	242.9	89	87
1976 ASM ----	(NA)	(NA)	(NA)	26.1	317.2	17.7	34.1	184.1	768.1	665.7	1 435.9	29.5	232.8	(NA)	(NA)
1975 ASM ----	(NA)	(NA)	(NA)	27.1	309.7	17.8	32.6	175.2	664.5	625.6	1 306.0	41.8	242.4	(NA)	(NA)
1974 ASM ----	(NA)	(NA)	(NA)	27.1	274.1	18.4	37.0	165.1	579.4	548.1	1 087.7	33.0	250.7	(NA)	(NA)
1973 ASM ----	(NA)	(NA)	(NA)	26.7	262.8	18.0	37.1	153.6	570.3	455.8	1 006.3	25.7	172.5	(NA)	(NA)
1972 Census ----	360	396	172	23.5	216.1	16.0	32.0	126.5	468.8	343.3	805.3	22.2	125.4	79	84
INDUSTRY 3565, PACKAGING MACHINERY⁵															
1987 Census ----	(NA)	422	218	21.3	601.4	12.6	25.1	308.5	1 354.4	760.4	2 110.0	70.4	531.9	(NA)	(NA)
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS															
1987 Census ----	(NA)	272	155	17.6	468.8	11.7	23.3	273.8	993.2	551.5	1 549.8	56.1	411.5	(NA)	(NA)
1986 ASM ----	(NA)	(NA)	(NA)	17.4	474.3	11.7	23.7	283.1	986.6	527.8	1 529.8	65.6	385.9	(NA)	(NA)
1985 ASM ----	(NA)	(NA)	(NA)	18.6	478.1	12.7	25.8	297.4	992.2	552.1	1 555.6	71.3	394.4	(NA)	(NA)
1984 ASM ----	(NA)	(NA)	(NA)	20.6	505.0	13.8	28.1	306.0	1 029.6	586.7	1 609.0	73.6	430.2	(NA)	(NA)
1983 ASM ----	(NA)	(NA)	(NA)	19.6	436.2	12.8	24.2	247.0	857.3	476.4	1 363.7	79.7	423.2	(NA)	(NA)
1982 Census ----	282	309	180	24.1	503.9	15.8	29.7	298.4	1 020.9	552.7	1 631.6	93.2	457.8	87	87
1981 ASM ----	(NA)	(NA)	(NA)	25.7	529.7	17.6	35.3	328.0	1 158.3	673.7	1 788.7	95.1	444.3	(NA)	(NA)
1980 ASM ----	(NA)	(NA)	(NA)	28.3	516.9	19.6	38.1	318.1	1 097.2	647.9	1 740.2	77.5	390.9	(NA)	(NA)
1979 ASM ----	(NA)	(NA)	(NA)	27.7	474.8	19.4	39.1	300.7	1 070.9	602.7	1 603.8	82.9	385.7	(NA)	(NA)
1978 ASM ----	(NA)	(NA)	(NA)	25.9	410.3	17.8	35.2	252.5	861.2	485.5	1 345.8	74.8	311.1	(NA)	(NA)
1977 Census ----	307	327	162	25.3	365.4	17.6	35.0	226.7	803.1	429.7	1 222.3	48.5	297.8	87	84
1976 ASM ----	(NA)	(NA)	(NA)	25.2	340.1	17.8	35.9	218.9	765.7	426.0	1 203.0	58.7	286.8	(NA)	(NA)
1975 ASM ----	(NA)	(NA)	(NA)	26.9	331.8	19.2	38.8	215.7	713.8	438.1	1 141.7	41.8	290.1	(NA)	(NA)
1974 ASM ----	(NA)	(NA)	(NA)	27.0	305.7	19.3	40.0	199.4	644.1	371.9	961.5	40.5	258.4	(NA)	(NA)
1973 ASM ----	(NA)	(NA)	(NA)	25.4	272.9	17.7	36.4	174.0	525.2	304.4	797.1	28.0	184.7	(NA)	(NA)
1972 Census ----	330	346	155	22.5	224.2	15.6	30.6	137.5	409.0	231.3	632.7	21.8	147.6	88	89
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS															
1987 Census ----	(NA)	359	163	16.0	384.9	9.6	18.5	181.0	782.4	603.5	1 375.2	25.7	239.6	(NA)	(NA)
1986 ASM ----	(NA)	(NA)	(NA)	15.4	357.7	8.4	15.9	160.6	687.3	580.6	1 291.7	21.9	232.0	(NA)	(NA)
1985 ASM ----	(NA)	(NA)	(NA)	15.2	327.1	8.6	15.7	153.1	686.9	596.5	1 288.5	27.4	228.5	(NA)	(NA)
1984 ASM ----	(NA)	(NA)	(NA)	14.7	306.0	8.7	16.5	148.3	702.7	519.6	1 197.2	*26.5	238.7	(NA)</	

See footnotes at end of table.

Table 1. Historical Statistics for the Industry: 1987 and Earlier Years—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Year ¹	Com- panies ² (no.)	All establishments ³		All employees		Production workers			Value added by manu- facture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expen- ditures (million dollars)	End-of- year inven- tories ⁴ (million dollars)	Ratios	
		Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Special- ization (per- cent)	Cover- age (per- cent)
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS—Con.															
1982 Census ----	321	353	172	16.1	312.6	9.2	17.8	149.2	624.9	465.2	1 102.2	21.1	204.5	90	94
1981 ASM ----	(NA)	(NA)	(NA)	16.7	300.2	10.1	19.1	152.4	643.2	496.3	1 115.9	22.1	203.2	(NA)	(NA)
1980 ASM ----	(NA)	(NA)	(NA)	17.9	287.9	11.2	21.1	147.6	599.6	489.3	1 108.2	17.6	180.2	(NA)	(NA)
1979 ASM ----	(NA)	(NA)	(NA)	17.6	263.1	11.3	21.4	140.0	563.4	444.3	1 004.2	21.1	188.6	(NA)	(NA)
1978 ASM ----	(NA)	(NA)	(NA)	15.1	224.9	9.0	17.2	113.0	464.4	342.0	810.5	20.7	157.8	(NA)	(NA)
1977 Census ----	311	327	137	15.2	209.4	9.3	17.9	107.4	469.3	305.4	746.3	13.4	151.4	91	90
1976 ASM ----	(NA)	(NA)	(NA)	13.3	183.5	7.6	14.7	91.2	373.0	291.8	669.5	11.8	122.4	(NA)	(NA)
1975 ASM ----	(NA)	(NA)	(NA)	13.8	179.3	8.1	15.9	93.0	363.0	302.7	664.6	14.8	138.6	(NA)	(NA)
1974 ASM ----	(NA)	(NA)	(NA)	15.8	189.5	10.1	20.8	102.6	382.0	293.7	645.7	13.3	153.6	(NA)	(NA)
1973 ASM ----	(NA)	(NA)	(NA)	13.7	149.5	8.7	17.6	81.2	294.7	226.7	498.9	7.1	93.1	(NA)	(NA)
1972 Census ----	253	266	108	13.6	138.5	8.1	16.0	69.8	244.3	200.3	443.2	7.5	75.7	78	91
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.															
1987 Census ----	(NA)	299	178	21.7	556.7	14.8	29.9	334.1	1 246.6	773.7	2 030.4	51.9	471.7	(NA)	(NA)
1986 ASM ----	(NA)	(NA)	(NA)	22.4	599.2	15.3	30.9	361.7	1 295.8	922.4	2 221.3	60.0	524.7	(NA)	(NA)
1985 ASM ----	(NA)	(NA)	(NA)	23.7	611.6	16.3	33.1	374.6	1 325.5	996.3	2 343.0	81.8	553.7	(NA)	(NA)
1984 ASM ----	(NA)	(NA)	(NA)	25.7	623.3	18.2	36.2	394.1	1 366.2	1 019.4	2 357.5	83.6	604.9	(NA)	(NA)
1983 ASM ----	(NA)	(NA)	(NA)	22.7	497.0	15.8	29.3	302.7	980.0	686.5	1 672.8	48.4	499.3	(NA)	(NA)
1982 Census ----	242	293	194	26.9	553.0	18.0	33.1	335.2	1 144.1	763.1	1 926.8	74.7	508.5	90	84
1981 ASM ----	(NA)	(NA)	(NA)	30.9	643.7	21.9	41.9	409.6	1 322.7	908.5	2 227.6	65.5	500.3	(NA)	(NA)
1980 ASM ----	(NA)	(NA)	(NA)	33.7	616.0	23.7	45.7	393.3	1 284.7	883.2	2 156.0	96.5	516.0	(NA)	(NA)
1979 ASM ----	(NA)	(NA)	(NA)	35.6	614.2	26.2	51.8	414.5	1 308.1	863.6	2 139.1	56.4	504.8	(NA)	(NA)
1978 ASM ----	(NA)	(NA)	(NA)	34.0	536.1	24.9	49.1	361.9	1 154.5	721.5	1 839.0	54.6	462.7	(NA)	(NA)
1977 Census ----	184	226	163	32.5	464.8	23.8	45.8	306.8	1 009.1	650.2	1 626.0	50.3	418.8	82	74
1976 ASM ----	(NA)	(NA)	(NA)	29.0	372.1	20.8	40.1	243.0	815.2	516.3	1 322.3	35.4	339.0	(NA)	(NA)
1975 ASM ----	(NA)	(NA)	(NA)	33.0	396.4	23.7	46.1	260.4	849.7	551.6	1 401.9	47.3	336.7	(NA)	(NA)
1974 ASM ----	(NA)	(NA)	(NA)	32.0	365.8	24.1	49.3	254.6	783.0	520.6	1 260.5	40.5	316.0	(NA)	(NA)
1973 ASM ----	(NA)	(NA)	(NA)	32.4	346.2	24.0	49.9	240.5	693.3	443.5	1 102.4	38.4	277.2	(NA)	(NA)
1972 Census ----	125	155	127	27.7	266.5	20.7	42.0	183.0	544.4	340.3	876.4	20.4	208.0	87	74
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C. ⁵															
1987 Census ----	(NA)	1 186	432	39.2	972.6	22.9	46.1	452.5	2 149.8	1 551.1	3 692.8	99.8	763.4	(NA)	(NA)

Note: Establishments of single unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. Data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were estimated based on administrative-record information from other agencies in conjunction with industry averages. These establishments accounted for the following percent of total value of shipments: SIC 3561, 8%; SIC 3562, 3%; SIC 3563, 9%; SIC 3564, 11%; SIC 3565, 6%; SIC 3566, 10%; SIC 3567, 14%; SIC 3568, 8%; and SIC 3569, 18%.

¹In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter.

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during year.

⁴Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

⁵Industry definition is new for 1987 Census of Manufactures. An explanation of the Standard Industrial Classification revision will appear in the final industry series text that supercedes this report.

⁶Estimates for new capital expenditures have associated standard error of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3561- --	PUMPS AND PUMPING EQUIPMENT						
	Total -----	(NA)	(X)	³ 499.1	(NA)	(X)	(³)
35611 -- 35611 00	Industrial pumps, except fluid power pumps: Industrial pumps, except hydraulic fluid power pumps, automotive circulating pumps, and measuring and dispensing pumps (including value of driver if shipped as a complete unit) (for additional detail, see Current Industrial Report MA-35P, Pumps and Compressors) -----	(NA)	(X)	1 698.8	181	(X)	1 916.9
35613 -- 35613 00	Domestic water systems: Domestic water systems (pumps for farm and home use), excluding irrigation pumps (including value of driver if shipped as a complete unit) (for additional detail, see Current Industrial Report MA-35P, Pumps and Compressors) -----	(NA)	(X)	310.0	37	(X)	215.5

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3561- —	PUMPS AND PUMPING EQUIPMENT—Con.						
35615 — 35615 30	Pumps, n.e.c. Domestic sump pumps (1 hp or less) (including value of driver if shipped as a complete unit) (for additional detail, see Current Industrial Report MA-35P, Pumps and Compressors)	(NA)	(X)	459.3	(NA)	(X)	1 048.2
35615 10	Oil-well and oil-field pumps, except boiler feed (including value of driver if shipped as a complete unit) (for additional detail, see Current Industrial Report MA-35P, Pumps and Compressors)	(NA)	(X)	121.3	32	(X)	86.2
35615 20	Other pumps (including value of driver if shipped as a complete unit), except automotive circulating pumps and measuring and dispensing pumps; including hot water heating circulator pumps, oil burner and appliance pumps, fire engine pumps, laboratory pumps, etc.) (for additional detail, see Current Industrial Report MA-35P, Pumps and Compressors)	(NA)	(X)	110.7	42	(X)	760.0
35615 00	Pumps, n.e.c., n.s.k.	(NA) (NA)	(X) (X)	202.6 24.7	64 (NA)	(X) (X)	202.0 2.3
35616 — 35616 00	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power, and air and gas compressors): Parts and attachments for pumps and pumping equipment, except for hydraulic fluid power, and air and gas compressors	(NA)	(X)	829.7	134	(X)	⁴ 1 298.9
35610 — 35610 00	Pumps and pumping equipment, n.s.k. Pumps and pumping equipment, n.s.k., typically for establishments with 10 employees or more (see note)	(NA) (NA)	(X) (X)	⁵ 201.3 ⁵ 121.0	(NA) (NA)	(X) (X)	³ 191.4 ³ 129.2
35610 02	Pumps and pumping equipment, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	⁸ 80.3	(NA)	(X)	³ 62.2
3562- —	BALL AND ROLLER BEARINGS						
	Total	(NA)	(X)	3 621.0	(NA)	(X)	2 973.1
35621 — 35621 00	Ball bearings, complete, unmounted: Ball bearings, complete, unmounted (for additional detail, see Current Industrial Report MA-35Q, Antifriction Bearings)	(NA)	(X)	1 338.3	51	(X)	1 087.1
35622 — 35622 00	Tapered roller bearings (including cups and cones), unmounted: Tapered roller bearings (including cups and cones), unmounted (for additional detail, see Current Industrial Report MA-35Q, Antifriction Bearings)	(NA)	(X)	761.8	16	(X)	710.9
35623 — 35623 00	Roller bearings, except tapered, unmounted: Roller bearings, except tapered, unmounted (for additional detail, see Current Industrial Report MA-35Q, Antifriction Bearings)	(NA)	(X)	734.4	34	(X)	614.1
35624 — 35624 00	Mounted bearings, except plain: Mounted bearings, except plain (for additional detail, see Current Industrial Report MA-35Q, Antifriction Bearings)	(NA)	(X)	304.6	17	(X)	241.7
35629 — 35629 00	Parts for ball and roller bearings, except cups and cones: Parts and components for ball and roller bearings (including ball and rollers, sold separately) (for additional detail, see Current Industrial Report MA-35Q, Antifriction Bearings)	(NA)	(X)	427.1	45	(X)	298.4
35620 — 35620 00	Ball and roller bearings, n.s.k. Ball and roller bearings, n.s.k., typically for establishments with 20 employees or more (see note)	(NA) (NA)	(X) (X)	54.8 25.3	(NA) (NA)	(X) (X)	20.9 4.8
35620 02	Ball and roller bearings, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	29.5	(NA)	(X)	16.1
3563- —	AIR AND GAS COMPRESSORS						
	Total	(NA)	(X)	⁶ 2 600.1	(NA)	(X)	⁶ 2 799.8
35631 — 35631 20	Air and gas compressors and vacuum pumps: Vacuum pumps (compressors) (including value of driver if shipped as a complete unit), except laboratory (for additional detail, see Current Industrial Report MA-35P, Pumps and Compressors)	(NA)	(X)	⁶ 1 223.3	(NA)	(X)	⁶ 1 630.7
35631 30	Air and gas compressors (including value of driver if shipped as a complete unit), except compressors for ice making equipment, refrigeration equipment, air- conditioning equipment, and pneumatic air motors (for additional detail, see Current Industrial Report MA-35P, Pumps and Compressors)	(NA)	(X)	124.0	28	(X)	205.1
35631 00	Air and gas compressors, n.s.k.	(NA) (NA)	(X) (X)	1 037.4 61.9	71 (NA)	(X) (X)	1 368.1 57.5
35632 — 35632 00	Parts and attachments for air and gas compressors, except refrigeration compressors: Parts and attachments for air and gas compressors, except for refrigeration, ice-making and air-conditioning equipment	(NA)	(X)	⁷ 529.2	52	(X)	⁷ 652.7

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3563--	AIR AND GAS COMPRESSORS—Con.						
35635 --	Industrial spraying equipment	(NA)	(X)	669.3	(NA)	(X)	442.0
35635 31	Power paint spraying outfits and other liquid power sprayers, except agricultural	(NA)	(X)	566.4	NA	(NA)	436.0
35635 51	Hand sprayers, except agricultural	(NA)	(S)	81.6			
35635 00	Industrial spraying equipment, n.s.k.	(NA)	(X)	21.2	(NA)	(X)	6.0
35630 --	Air and gas compressors, n.s.k.	(NA)	(X)	178.4	(NA)	(X)	74.4
35630 00	Air and gas compressors, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	130.6	(NA)	(X)	35.6
35630 02	Air and gas compressors, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	47.8	(NA)	(X)	38.8
1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3564--	BLOWERS AND FANS						
	Total	(NA)	(X)	2 124.9	(NA)	(X)	1 994.5
35643 --	Centrifugal fans and blowers	(NA)	(X)	544.2	(NA)	(X)	556.9
35643 17	Blower-filter units	(NA)		52.6	10	**32.5	24.0
35643 19	Classes I and II fans (more than 1 1/2 in. to 6 3/4 in. maximum total pressure)	(NA)	**52.3	96.1	33	(S)	62.5
35643 21	Classes III and IV fans (more than 6 3/4 in. maximum total pressure)	(NA)	(S)	69.9	(NA)	(S)	88.7
35643 23	Furnace and lightweight air-conditioning blowers	(NA)					
35643 24	Industrial fans, excluding blowers, turboblowers, and multistage blowers	(NA)	(S)	155.6	34	(S)	156.2
35643 27	Positive displacement blowers (excluding turboblowers)	(NA)	(S)	77.6	14	*42.5	103.9
35643 28	Turboblowers (single stage, single and double inlet)	(NA)	(S)	9.2	10	(S)	16.8
35643 29	Multistage blowers	(NA)	(S)	41.6	9	11.0	46.6
35643 31	Small housed blowers (utility sets)	(NA)	(S)	20.4	15	*312.6	51.6
35643 00	Centrifugal fans and blowers, n.s.k.	(NA)	(X)	21.3	(NA)	(X)	6.6
35644 --	Propeller fans and accessories, axial fans, and power roof ventilators	(NA)	(X)	465.8	(NA)	(X)	464.8
35644 13	Directly connected to driver	(NA)	(S)	115.2	21	180.2	113.7
35644 15	Belt-driven	(NA)	(S)	27.9	21	(S)	31.6
35644 33	Industrial:						
35644 35	Directly connected to driver	(NA)	(S)	41.4	15	(S)	25.2
35644 37	Belt-driven	(NA)	(S)	62.5	17	(S)	42.2
35644 39	Penthouses, shutters, guards, and other accessories	(NA)	(X)	34.2	18	(X)	29.7
35644 41	Parts for fans and blowers	(NA)	(X)	(D)	29	(X)	71.3
35644 43	Power roof ventilators group:						
35644 45	Parts for power roof ventilators	(NA)	(S)	55.5	29	(S)	72.5
35644 00	Propeller fans, axial fans, and power roof ventilators, n.s.k.	(NA)	(X)	14.0	(NA)	(X)	4.4
35645 --	Dust collection and other air-purification equipment for heating, ventilating, and air-conditioning systems (for cleaning incoming air)	(NA)	(X)	560.5	(NA)	(X)	425.5
35645 31	Air washers	(NA)	(S)	17.2	11	(S)	13.1
35645 41	Electrostatic precipitation equipment	(NA)	*592.5	57.4	16	(S)	70.2
35645 43	Air filters for air-conditioners and furnaces, etc., of 2400 CFM or less	(NA)	(S)	170.5	38	(S)	187.5
35645 46	Other dust collection and other air-purification equipment (including air filters for air-conditioners and furnaces) (more than 2400 CFM)	(NA)	(X)	263.4	(NA)	(X)	143.8
35645 47	Parts	(NA)	(X)	34.1			
35645 00	Dust collection and air-purification equipment for heating, ventilating, and air-conditioning systems (for cleaning incoming air), n.s.k.	(NA)	(X)	17.8	(NA)	(X)	10.9
35646 --	Dust collection and other air-purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	(NA)	(X)	296.7	(NA)	(X)	425.6
35646 10	Dust collection and other air-purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	(NA)	(X)	260.2			
35646 20	Parts for industrial air-purification equipment	(NA)	(X)	29.8	(NA)	(X)	425.6
35646 00	Dust collection and other air-purification equipment for industrial gas cleaning systems (for cleaning outgoing air), n.s.k.	(NA)	(X)	6.8			
35640 --	Blowers and fans, n.s.k.	(NA)	(X)	257.7	(NA)	(X)	121.7
35640 00	Blowers and fans, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	192.1	(NA)	(X)	73.8
35640 02	Blowers and fans, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	65.6	(NA)	(X)	47.9

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3565- --	PACKAGING MACHINERY						
	Total	(NA)	(X)	1 996.8	(NA)	(X)	(⁹)
35651 --	Packing, packaging, and bottling machinery, except parts	(NA)	(X)	1 652.8	(NA)	(X)	⁹ 1 644.9
35651 01	Cartoning and multipacking machinery	(NA)	(S)	176.3	39	(S)	102.8
35651 02	Thermoforming and blister packaging machinery	(NA)	(S)	69.4	8	(D)	(¹⁰)
35651 03	Bag opening, filling, and closing machinery	(NA)	(S)	42.0	27	(S)	52.9
	Forming, filling, and sealing machinery, bag or pouch (must perform all three functions):						
35651 04	Horizontal type	(NA)	(S)	68.4	11	(S)	85.9
35651 05	Vertical type	(NA)	(S)	42.5			
35651 06	Wrapping, banding, bundling, fastening, and sleeve wrapping machinery	(NA)	(S)	190.3	36	(S)	102.8
35651 07	Shrink film packaging machinery, including shrink tunnels	(NA)	(S)	42.6	18	(S)	27.7
35651 08	Stretch film packaging machinery	(NA)	(S)	36.6	6	(D)	(¹⁰)
35651 09	Vacuum, gas, and skin packaging machinery	(NA)	(S)	7.4	8	(D)	(¹⁰)
	Filling machinery:						
35651 11	Dry products (free flowing and nonfree flowing) (including powders)	(NA)	(D)	(D)	15	(S)	29.7
35651 12	Liquids (free flowing)	(NA)	(S)	50.6	45	(S)	106.5
35651 13	Viscous products (very heavy liquids, slimes, and pumpable semisolids)	(NA)	*6.5	30.5	13	(S)	8.4
35651 14	By count	(NA)	(D)	(D)	9	830	13.7
35651 15	Labeling, code marking, imprinting, and leaflet/coupon inserting machinery	(NA)	22.2	236.0	43	**21 046	164.7
35651 16	Case forming, opening, loading, unloading, and sealing machinery	(NA)	*17 333	169.6	38	(S)	96.3
35651 17	Capping, sealing, and lidding machinery, including can sealing machinery, but excluding filling machinery	(NA)	(S)	65.5	26	(S)	62.6
35651 18	Accumulating, collating, feeding, and unscrambling machinery	(NA)	(S)	20.8	28	(S)	52.1
35651 19	Testing, inspecting, and weight control machinery	(NA)	(S)	90.1	20	(S)	59.4
35651 21	Other machinery, including combinations of machinery classified in more than one of the above	(NA)	(S)	121.9	91	(S)	¹⁰ 307.6
35651 22	Bottle washers and sterilizers	(NA)	(S)	14.7	17	*385	¹¹ 34.5
35651 00	Packing, packaging and bottling machinery, except parts, n.s.k.	(NA)	(X)	148.3	(NA)	(X)	35.8
35652 --	Parts for packing, packaging, and bottling machinery:						
35652 00	Parts for packing, packaging, and bottling machinery	(NA)	(X)	298.5	137	(X)	301.5
35650 --	Packaging machinery, n.s.k.	(NA)	(X)	45.5	(NA)	(X)	(⁹)
35650 00	Packaging machinery, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	3.1	(NA)	(X)	(⁹)
35650 02	Packaging machinery, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	42.4	(NA)	(X)	(⁹)
3566- --	SPEED CHANGERS, DRIVES, AND GEARS						
	Total	(NA)	(X)	1 528.5	(NA)	(X)	1 557.4
35660 --	Speed changers, industrial high-speed drives, and gears: Geared speed changers, industrial high-speed drives, mechanical variable speed drives, and unassembled gearing (loose gears, speed reducers and increasers, mechanical variable speed drives, and mechanical power transmissions, except transmissions or gearing manufactured as integral components of automobiles, trucks, buses, tractors, and aircraft):						
35660 11	Mechanical nonhydraulic variable speed changers and parts, excluding value of drivers	(NA)	(S)	132.9	29	(S)	113.4
35660 21	Industrial high-speed drives, fixed ratio (pitch line velocity of 5,000 feet (1,525 meters) per minute or more, or pinion speeds of 3,600 r.p.m. or more)	(NA)	(S)	44.9	27	(S)	144.3
	Speed reducers, fixed ratio, enclosed, except gear motors (sold without motor):						
	Worm gear reducers, including "C" flange or scoop mount:						
35660 17	6 in. (15.24 cm) centers or more	(NA)	**74.1	62.1	16	(S)	42.9
35660 18	3 in. (7.62 cm) to 5.99 in. (15.22 cm) centers	(NA)	(S)	87.3	23	(S)	67.0
35660 24	Less than 3 in. (7.62 cm) centers	(NA)	**471.3	70.8	18	375.7	53.4
	Shaft mounted reducers and screw conveyor drives, including repair parts (excluding shaft mounted helical gear motors and worm gear reducers):						
35660 25	Hollow shaft diameter, 2 1/2 in. (6.35 cm) or less	(NA)	(S)	26.2	12	(S)	28.3
35660 29	Hollow shaft diameter, more than 2 1/2 in. (6.35 cm)	(NA)	(S)	34.8	9	(S)	30.4
	Helical, herringbone, spur, and spiral bevel reducers:						
35660 27	More than 15 in. (38.10 cm) low speed center	(NA)	(S)	45.1	16	(S)	61.6
35660 28	15 in. (38.10 cm) low speed center or less	(NA)	(S)	116.8	31	(S)	135.1
	Gearmotors, sold with motors, including "C" flange and scoop mount units (including value of motors):						
	Worm gearmotors:						
35660 31	Less than 1/6 hp (124.3 W)	(NA)	(D)	(D)	4	(S)	20.1
35660 32	1/6 hp (124.3 W) up to but excluding 1 hp (746.0 W)	(NA)	*139.8	25.7	7	94.1	16.8
35660 35	1 hp (746.0 W) to 5 hp (3,730.0 W)	(NA)	(S)	53.2	7	104.9	14.6
35660 36	More than 5 hp (3,730.0 W)	(NA)	(D)	(D)	4	(S)	2.1
	Helical, herringbone, spur, or spiral bevel gearmotors:						
35660 33	Less than 1/6 hp (124.3 W)	(NA)	(D)	(D)	5	(S)	41.3
35660 40	1/6 hp (124.3 W) up to but excluding 1 hp (746.0 W)	(NA)	(S)	16.7	5	(S)	13.9
35660 38	1 hp (746.0 W) to 5 hp (3,730.0 W)	(NA)	(S)	17.1	9	(S)	38.8
35660 39	More than 5 hp (3,730.0 W)	(NA)	(S)	18.7	8	(S)	28.4

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3566--	SPEED CHANGERS, DRIVES, AND GEARS—Con.						
35660 --	Speed changers, industrial high-speed drives, and gears — Con.						
	Loose gears, pinions, and racks (excluding spare parts for reducers)						
35660 41	Fine pitch (19.99 diametral pitch and finer) -----	(NA)	(X)	55.2	38	(X)	60.7
	Coarse pitch (less than 19.99 diametral pitch):						
35660 42	Helical, herringbone, and spur gears:						
	24 in. (60.96 cm) or less -----	(NA)	(X)	144.8	73	(X)	194.3
35660 43	More than 24 in. (60.96 cm) diameter through 72 in. (182.88 cm) diameter -----	(NA)	(X)	38.9	36	(X)	84.4
35660 44	More than 72 in. (182.88 cm) diameter -----	(NA)	(X)	26.7	11	(X)	15.9
35660 45	Worms and worm gearing -----	(NA)	(X)	45.5	41	(X)	41.6
35660 46	Others, including bevel gears and racks -----	(NA)	(X)	114.5	50	(X)	158.7
35660 51	Other parts and components for speed changers, including housings, shafts, pins, and spacers -----	(NA)	(X)	134.8	44	(X)	74.7
35660 00	Speed changers, drives, and gears, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	132.5	(NA)	(X)	47.6
35660 02	Speed changers, drives, and gears, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	52.1	(NA)	(X)	27.1
3567--	INDUSTRIAL FURNACES AND OVENS						
	Total -----	(NA)	(X)	1 182.1	(NA)	(X)	1 026.8
35671 --	Electric industrial furnaces, ovens, and kilns -----	(NA)	(X)	337.6	(NA)	(X)	295.2
	Electric furnaces (excluding induction):						
35671 11	Metal melting ----- number -----	(NA)	(S)	26.2	11	(S)	36.8
35671 21	Metal processing and heat treating (such as annealing, hardening, carburizing, and porcelain enameling furnaces) ----- do -----	(NA)	(S)	134.5	41	(S)	111.6
35671 29	Other electric furnaces ----- do -----	(NA)	(S)	81.5	12	(S)	64.9
35671 43	Electric industrial ovens and kilns, including infrared ----- do -----	(NA)	(S)	79.9	41	(S)	74.6
35671 00	Electric industrial furnaces, ovens, and kilns, n.s.k. -----	(NA)	(X)	15.6	(NA)	(X)	7.3
35674 --	High frequency induction and dielectric heating equipment -----	(NA)	(X)	107.9	(NA)	(X)	131.9
	Furnaces and ovens, induction or dielectric:						
35674 01	Radio frequency type (includes spark gap) and line and motor-generator set frequency types, except metal melting ----- number -----	(NA)	(S)	25.1	14	(S)	26.8
35674 02	Metal melting induction furnaces ----- do -----	(NA)	(S)	46.6			
35674 03	Other induction or dielectric furnaces and ovens ----- do -----	(NA)	(S)	20.2			
35674 04	Other induction or dielectric heating equipment ----- do -----	(NA)	(X)	15.8	(NA)	(X)	105.1
35674 00	High frequency induction and dielectric heating equipment, n.s.k. ----- do -----	(NA)	(X)	.2			
35675 --	Electrical heating equipment for industrial use, n.e.c., (except soldering irons) and parts and attachments -----	(NA)	(X)	312.3	(NA)	(X)	289.1
	Industrial electric heating units and devices, except heating units for electric furnaces:						
35675 01	Tubular heaters ----- number -----	(NA)	(S)	54.8	17	(S)	25.5
35675 02	Space heaters ----- do -----	(NA)	(X)	29.4			
35675 03	All other, including strip and ring heaters, water and oil immersion heaters, glue and compound pots, etc. -----	(NA)	(X)	128.7	46	(S)	163.2
	Parts, attachments and components for electrical industrial furnaces and ovens (including electric heating units sold separately):						
35675 11	For space heaters ----- do -----	(NA)	(X)	20.1	47	(X)	99.2
35675 12	For other electrical ----- do -----	(NA)	(X)	72.7			
35675 00	Electrical heating equipment, industrial, n.s.k. -----	(NA)	(X)	6.4	(NA)	(X)	1.2
35676 --	Fuel-fired industrial furnaces, ovens, and kilns -----	(NA)	(X)	263.8	(NA)	(X)	12248.6
	Furnaces:						
35676 01	Metal melting, including blast furnaces and cupolas ----- number -----	(NA)	(S)	44.9	15	(S)	52.5
35676 02	Metal processing and heat treating (such as annealing, hardening, carburizing, and porcelain enameling furnaces) ----- do -----	(NA)		64.1	36	(S)	102.3
35676 03	Hot rolling, forging, forming, and extruding ----- do -----	(NA)			6	(S)	9.2
35676 04	Other fuel-fired furnaces ----- do -----	(NA)		40.3	(NA)	(X)	(13)
35676 05	Industrial ovens ----- do -----	(NA)		82.9	40	(S)	1383.4
35676 06	Kilns (except cement, wood, and chemical) ----- do -----	(NA)			(NA)	(X)	(13)
	Parts and attachments:						
35676 17	Made of ceramic and ceramic composite ----- do -----	(NA)	(X)	4.5	(NA)	(NA)	(14)
35676 19	Made of other materials ----- do -----	(NA)	(X)	8.7	(NA)	(NA)	(14)
35676 00	Fuel-fired industrial furnaces, ovens, and kilns, n.s.k. -----	(NA)	(X)	18.6	(NA)	(X)	1.2
35670 --	Industrial furnaces and ovens, n.s.k. -----	(NA)	(X)	160.4	(NA)	(X)	62.0
35670 00	Industrial furnaces and ovens, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	102.5	(NA)	(X)	32.0
35670 02	Industrial furnaces and ovens, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	57.9	(NA)	(X)	30.0
3568--	POWER TRANSMISSION EQUIPMENT, N.E.C.						
	Total -----	(NA)	(X)	2 067.8	(NA)	(X)	1 985.6
35681 --	Plain bearings and bushings -----	(NA)	(X)	374.9	(NA)	(X)	385.0
	Plain bearings and bushings, unmounted, machined:						
35681 11	Ceramic and ceramic composites ----- do -----	(NA)	(X)	237.6	75	(X)	366.6
35681 13	Other (excluding carbon and graphite, all types) ----- do -----	(NA)					
35681 51	Mounted bearings, plain (except engine) ----- do -----	(NA)	(X)	115.6	9	(X)	12.5
35681 00	Plain bearings and bushings, n.s.k. ----- do -----	(NA)	(X)	21.8	(NA)	(X)	5.9

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3568—	POWER TRANSMISSION EQUIPMENT, N.E.C.— Con.						
35683 —	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c. (excluding equipment for automobiles, trucks, buses, tractors, and aircraft)	(NA)	(X)	1 541.9	(NA)	(X)	1 556.3
	Clutches and brakes:						
35683 11	Friction type	(NA)	(S)	162.4	28	*2 545.3	136.9
35683 13	Hydraulic type, including hydraulic couplings	(NA)	(S)	26.7	10	(S)	25.6
35683 19	All other clutches and brakes	(NA)	320.4	117.6	20	*705.0	105.3
	Flexible couplings:						
	1 in. nominal bore or more:						
35683 21	Gear type	(NA)	(S)	70.3	13	(S)	62.0
35683 22	Other than gear type	(NA)	(S)	74.8	18	(S)	85.1
35683 24	Less than 1 in. nominal bore	(NA)	(S)	8.5	9	(S)	9.3
35683 25	Universal joints	(NA)	(S)	149.0	16	(S)	121.9
35683 26	Nonflexible couplings	(NA)	(S)	6	10	(S)	23.2
35683 27	Flexible shafts	(NA)	(15)	18.3	4	(D)	(15)
35683 28	Drive shafts, except flexible shafts	(NA)	15.2	17.5	8	(S)	10.4
35683 29	Drive shaft guards, flanges, and adapter plates	(NA)	(X)	(15)	4	(X)	(15)
35683 30	Ball joints	(NA)	(NA)	1523.8	2	(NA)	1516.4
	Chains for sprocket drives:						
	ASA standard roller chain:						
	3 in. pitch or less	(NA)	(X)	82.7	(NA)	(X)	145.8
35683 34	More than 3 in. pitch	(NA)	(X)	121.8	8	(X)	97.2
35683 35	Other chain for sprocket drives	(NA)	(D)	(16)	(NA)	(X)	(17)
35683 36	Parts	(NA)	(D)				
	Sprockets:						
35683 43	For ASA standard roller chain	(NA)	(X)	84.0	19	(X)	85.5
35683 45	Other sprockets	(NA)	(X)	18.7	20	(X)	40.6
35683 51	Pulleys	(NA)	(S)	64.4	19	(S)	38.7
	Sheaves:						
35683 61	Single drive	(NA)	**4 374.5	28.8	9	*5 492.3	38.8
35683 65	Multiple drive	(NA)	(S)	35.4	8	(S)	39.5
35683 94	Inboard marine propulsion gear transmissions, including reversing, speed changing, and turbine driven gear drives	(NA)	(S)	94.5	7	**75.7	71.7
35683 96	Outboard gear drives (inboard prime mover)	(NA)	(S)		5	(S)	22.8
35683 92	Mechanical transmissions, except marine	(NA)	(D)	(18)	4	(S)	63.5
35683 97	Mechanical seals for rotating shafts	(NA)	(X)	12.8	6	(X)	22.3
35683 98	Other mechanical power transmission equipment, except aircraft, tractor, automobile, truck, and bus (except parts of above items)	(NA)	(X)	18201.9	38	(X)	17285.7
35683 95	Mountings for bearings (pillow blocks, flange blocks, etc.)	(NA)	(X)	20.2	(NA)	(X)	(17)
35683 93	Other parts for mechanical power transmission equipment	(NA)	(X)	1661.3	(NA)	(X)	(17)
35683 00	Mechanical power transmission equipment, n.e.c., n.s.k.	(NA)	(X)	46.7	(NA)	(X)	8.1
35680 —	Power transmission equipment, n.e.c., n.s.k.	(NA)	(X)	150.9	(NA)	(X)	44.3
35680 00	Power transmission equipment, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	81.4	(NA)	(X)	19.7
35680 02	Power transmission equipment, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	69.5	(NA)	(X)	24.6
3569—	GENERAL INDUSTRIAL MACHINERY, N.E.C.						
	Total	(NA)	(X)	3 762.4	(NA)	(X)	(19)
35692 —	Filters for hydraulic and pneumatic fluid power systems:						
35692 00	Filters for hydraulic and pneumatic fluid power systems (for additional detail, see Current Industrial Report MA-35N, Fluid Power Products, Including Aerospace)	(NA)	(X)	252.7	40	(X)	20215.7
35693 —	Filters and strainers, except fluid power	(NA)	(X)	1 162.4	(NA)	(X)	1 137.4
	Filters and strainers, including purification, clarification, and solids removal, (excluding internal combustion engine filters, dust collection and air-purification equipment, air filters for comfort heating and air-conditioning equipment, mining screens, and fluid power filters):						
	Containment (housing) devices:						
35693 04	For water	(NA)	(S)	234.8			
35693 05	For beverages other than water	(NA)	(S)	22.2	(NA)	(S)	617.0
35693 06	For other fluids	(NA)	(S)	171.7			
35693 09	Parts and accessories, sold separately	(NA)	(X)	104.1	47	(X)	96.7
	Media:						
35693 11	Reusable (cleanable)	(NA)	(X)	200.9	33	(X)	108.2
35693 12	Nonreusable, including disposable (throw away) litter cartridges	(NA)	(X)	370.4	62	(X)	279.3
35693 00	Filters and strainers, except fluid power, n.s.k.	(NA)	(X)	58.4	(NA)	(X)	36.2
35697 —	Industrial robots, attachments and parts:						
35697 00	Industrial robots, attachments and parts (for additional detail, see Current Industrial Report MA-35X, Robots)	(NA)	(X)	306.4	(NA)	(X)	(21)
35698 —	Other general industrial machinery, n.e.c.	(NA)	(X)	1 369.1	(NA)	(X)	211 680.4
	Gas generating equipment:						
35698 01	Complete units	(NA)	(S)	31.2	13	4.6	90.4
35698 02	Parts	(NA)	(X)	3.2			
	Gas separating equipment:						
35698 03	Complete units	(NA)	(S)	48.6	14	9.0	124.9
35698 04	Parts	(NA)	(X)	(22)			
	Steam and vapor separators:						
35698 05	Complete units	(NA)	(D)	(23)	7	(S)	15.3
35698 06	Parts	(NA)	(X)	(22)			

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987				1982			
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Value (million dollars)	Number of companies with shipments of \$100,000 or more	Product shipments ¹		Value (million dollars)
			Quantity ²				Quantity ²		
3569- --	GENERAL INDUSTRIAL MACHINERY, N.E.C.— Con.								
35698 --	Other general industrial machinery, n.e.c.—Con.								
35698 07	Compressed air and gas dryers:								
35698 08	Complete units ----- thousands...	(NA)	(S)	58.6	15	**84.7			53.8
	Parts -----	(NA)	(X)	6.1					
35698 11	Mixers for industrial processes, solids or liquids:								
35698 12	Complete units ----- thousands...	(NA)	(S)	127.6	33	(S)			121.9
	Parts -----	(NA)	(X)	6.2					
35698 13	Lubricating systems, industrial, centralized and automatic:								
35698 14	Complete units ----- thousands...	(NA)	(S)	31.6	17	(S)			53.3
	Parts -----	(NA)	(X)	(²²)					
35698 15	Sifting and screening machines:								
35698 16	Complete units ----- thousands...	(NA)	(S)	18.8	11	(S)			28.4
	Parts -----	(NA)	(X)	(²²)					
35698 17	Presses, metal baling:								
35698 18	Complete units ----- thousands...	(NA)	(S)	14.5	14	(S)			46.4
	Parts -----	(NA)	(X)	2.2					
35698 21	Centrifugals and separators (except cream, grain, and berry):								
35698 22	Complete units ----- thousands...	(NA)	(S)	81.8	22	(S)			239.6
	Parts -----	(NA)	(X)	15.0					
35698 23	Automatic fire sprinklers:								
35698 24	Complete units ----- thousands...	(NA)	(S)	55.5	21	(S)			145.1
	Parts -----	(NA)	(X)	24.2					
35698 25	Pneumatic jacks:								
35698 26	Complete units ----- thousands...	(NA)	(D)	(²³)	6	(S)			6.6
	Parts -----	(NA)	(X)	(²²)					
35698 27	Hydraulic jacks:								
35698 28	Complete units ----- thousands...	(NA)	(S)	26.7	24	**129.3			67.5
	Parts -----	(NA)	(X)	2.2					
35698 31	Screwjacks (except automotive):								
35698 32	Complete units ----- thousands...	(NA)	(S)	46.7	7	188.0			42.6
	Parts -----	(NA)	(X)	(²²)					
35698 35	Machines for balancing mechanical parts:								
35698 36	Complete units ----- thousands...	(NA)	(S)	3.4	202	(X)			584.9
	Parts -----	(NA)	(X)	(²²)					
35698 48	Other general industrial machinery:								
35698 49	Complete units ----- thousands...	(NA)	(S)	²³ 566.8					
35698 00	Parts -----	(NA)	(X)	²² 169.0					
35698 00	Other general industrial machinery, n.e.c., n.s.k.	(NA)	(X)	29.2	(NA)	(X)			59.8
35690 --	General industrial machinery, n.e.c., n.s.k.	(NA)	(X)	671.8	(NA)	(X)			(¹⁹)
35690 00	General industrial machinery, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	535.3	(NA)	(X)			(¹⁹)
35690 02	General industrial machinery, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	136.5	(NA)	(X)			(¹⁹)

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³In the 1987 SIC revision, new SIC Industry 3561, Pumps and Pumping Equipment, was redefined and is not directly comparable to prior-year data. For 1987, fluid power pumps and motors and parts thereof were reclassified from old SIC 3561, Pumps and Pumping Equipment and established as new SIC Industry 3594, Fluid Power Pumps and Motors.

⁴In 1982, data for product code 35616 00 were published as old product code 3561C 00.

⁵Data include an undeterminable amount of fluid power pumps and motors (SIC 3594) manufacturers that did not totally identify their products.

⁶In the 1987 SIC revision, SIC Industry 3563, Air and Gas Compressors was redefined. For 1987, pneumatic air motors and parts thereof were reclassified to new SIC Industry 3594, Fluid Power Pumps and Motors. Since this revision caused less than 3 percent change in the data, comparability to prior years data was not significantly affected.

⁷For 1987, parts and attachments for pneumatic air motors were reclassified to new SIC Industry 3594. However, these products were not collected separately in 1982; therefore, are included in 1982 data for product code 35632 00. As a result, the data may not be directly comparable.

⁸SIC 3565, Packaging Machinery, is published as a separate industry for the first time in 1987. In 1982, data were included as part of old SIC Industries 3551, Food Products Machinery, and 3569, General Industrial Machinery, N.E.C., and separate data are not available. Furthermore, in 1987 old SIC Industry 3565, Industrial Patterns, was renumbered and published as new SIC Industry 3543, Industrial Patterns.

⁹For 1982, data for product code 35651 -- were published as old product codes 35514 -- and 35691 --.

¹⁰For 1982, data for product codes 35651 02, 35651 08, and 35651 09 are combined with product code 35651 21 to avoid disclosing data for individual companies.

¹¹For 1982, data for product 35651 22 were collected and published as product code 35513 67.

¹²In 1982, data for product code 35676 -- were published as product code 35672 --.

¹³For 1982, data for product codes 35676 04 and 35676 06 were not collected separately, but included with product code 35676 05.

¹⁴In 1982, parts and attachments for fuel-fired industrial furnaces, ovens, and kilns were not collected separately, but included with complete furnaces, ovens, and kilns.

¹⁵For both 1987 and 1982, data for product codes 35683 27, 35683 29, and 35683 30 have been combined to avoid disclosing data for individual companies.

¹⁶For 1987, data for product code 35683 36 are combined with product code 35683 93 to avoid disclosing data for individual companies.

¹⁷For 1982, data for product codes 35683 36, 35683 93, and 35683 95 were not collected separately, but were included with product code 35683 98.

¹⁸For 1987, data for product code 35683 92 are combined with product code 35683 98 to avoid disclosing data for individual companies.

¹⁹In the 1987 SIC revision, new SIC Industry 3569, General Industrial Machinery, N.E.C., was redefined and is not directly comparable to prior-year data. For 1987, packaging machinery and parts thereof were reclassified from old SIC Industry 3569, General Industrial Machinery, N.E.C., and established as part of new SIC Industry 3565, Packaging Machinery, and separate data are not available.

²⁰For 1982, data for product code 35692 00 were published as product codes 35694 00, 35695 00, and 35696 00.

²¹For 1982, data for product codes 35697 00 and 35698 -- were not collected separately, but included with product code 35699 --.

²²For 1987, data for product codes 35698 04, 35698 06, 35698 14, 35698 16, 35698 26, 35698 32, and 35698 36 are combined with product code 35698 49 to avoid disclosing data for individual companies.

²³For 1987, data for product codes 35698 05 and 35698 25 are combined with product code 35698 48 to avoid disclosing data for individual companies.

Table 3. Materials Consumed by Kind: 1987 and 1982

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3561, PUMPS AND PUMPING EQUIPMENT				
	Materials, parts, containers, and supplies	(X)	1 634.7	(X)	(³)
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes 1,000 s tons..	(S)	17.7	(NA)	(NA)
331012	Sheet and strip do..	(S)	9.2	(NA)	(NA)
331013	Plates do..	**11.0	6.2	(NA)	(NA)
331015	Structural shapes do..	(S)	2.9	(NA)	(NA)
331055	All other do..	7.2	9.8	(NA)	(NA)
	Alloy steel, except stainless:				
331021	Bars and bar shapes 1,000 s tons..	(S)	23.7	(NA)	(NA)
331029	All other alloy steel mill shapes and forms do..	(S)	4.3	(NA)	(NA)
	Stainless steel:				
331033	Sheet and strip 1,000 s tons..	(S)	12.2	(NA)	(NA)
331050	All other stainless steel mill shapes and forms do..	(S)	34.2	(NA)	(NA)
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes mil lb..	(S)	5.1	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs do..	*3.4	3.1	(NA)	(NA)
335152	Pipe and tube do..			(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. mil lb..	(S)	1.0	(NA)	(NA)
335007	All other (sheet, plate, foil, wire, rolled rod and bar, powder, welded tubing, etc.) do..	**7	1.4	(NA)	(NA)
335609	Nonferrous metal mill shapes and forms, except copper and aluminum do..	(S)	1.4	(NA)	(NA)
	Primary metals:				
331051	Pig iron, excluding silvery iron 1,000 s tons..	(S)	2.9	(NA)	(NA)
333122	Copper and copper-base alloy refinery shapes do..	(S)	4.5	(NA)	(NA)
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content) mil lb..	(S)	9.8	(NA)	(NA)
339915	Metal powders do..	(S)	2.5	(NA)	(NA)
190023	Iron and steel scrap, excluding home scrap 1,000 s tons..	(S)	3.8	(NA)	(NA)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) 1,000 s tons..	(S)	126.0	(NA)	(NA)
332045	Steel do..	**23.9	53.6	(NA)	(NA)
336005	Aluminum and aluminum-base alloy mil lb..	(S)	24.2	(NA)	(NA)
336006	Copper and copper-base alloy do..	(S)	31.7	(NA)	(NA)
336008	Other nonferrous do..	(S)	17.1	(NA)	(NA)
346200	Iron and steel forgings 1,000 s tons..	(S)	11.7	(NA)	(NA)
346701	Metal stampings do..	*8.5	19.8	(NA)	(NA)
	Engines:				
351920	Diesel and semidiesel number..	(S)	14.4	(NA)	(NA)
351901	Gasoline and other carburetor engines thousands..	(S)	7.3	(NA)	(NA)
	Electric motors and generators:				
362115	Fractional horsepower electric motor (less than 1 hp), excluding timing motors thousands..	*4 432.2	144.7	(NA)	(NA)
362120	Integral horsepower motors and generators (1 hp or more) do..	(S)	89.7	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball do..	(X)	10.7	(NA)	(NA)
356201	Roller do..	(X)	5.1	(NA)	(NA)
356810	Plain bearings and bushings do..	(X)	14.3	(NA)	(NA)
356601	Speed changers, drives, gears, industrial high-speed drivers do..	(X)	7.2	(NA)	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard 1,000 s tons..	(S)	11.9	(NA)	(NA)
305201	Rubber and plastics hose and belting do..	(X)	5.3	(NA)	(NA)
306902	Fabricated rubber products, except tires, tubes, belts, hosing, and gaskets do..	(X)	22.5	(NA)	(NA)
308006	Fabricated plastics products, except gaskets, hose, and belting do..	(X)	42.5	(NA)	(NA)
329300	Gaskets (all types) and asbestos packing do..	(X)	19.6	(NA)	(NA)
345001	Bolts, nuts, screws, rivets, and screw machine products do..	(X)	28.1	(NA)	(NA)
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments do..	(X)	19.1	(NA)	(NA)
349402	Fabricated metal pipe, valves, and pipe fittings do..	(X)	25.9	(NA)	(NA)
354501	Cutting tools for machine tools do..	(X)	9.5	(NA)	(NA)
356101	Pumps and pump parts used as materials do..	(X)	130.6	(NA)	(NA)
356301	Air and gas compressors, except refrigeration thousands..	(S)	2.9	(NA)	(NA)
357001	Electronic computing equipment and parts do..	(X)	4.0	(NA)	(NA)
360101	Electrical transmission, distribution, and control equipment do..	(X)	36.5	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies do..	(X)	294.1	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k. ² do..	(X)	248.9	(NA)	(NA)
	INDUSTRY 3562, BALL AND ROLLER BEARINGS				
	Materials, parts, containers, and supplies	(X)	1 320.4	(X)	1 056.2
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes 1,000 s tons..	*54.2	40.0	*49.8	44.8
331012	Sheet and strip do..	*63.9	45.9	*54.0	41.0
331013	Plates do..	(*)	(*)	11.1	7.2
331017	Wire and wire products do..	*18.9	12.4	34.0	28.0
331058	All other carbon steel mill shapes and forms do..	*23.4	*20.8	(S)	19.6
	Alloy steel, except stainless:				
331021	Bars and bar shapes 1,000 s tons..	60.4	63.8	*62.2	76.4
331029	All other alloy steel mill shapes and forms do..	142.8	141.6	125.5	168.3
	Stainless steel:				
331033	Sheet and strip 1,000 s tons..				
331050	All other stainless steel mill shapes and forms do..	(S)	8.4	7.8	23.6

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3562, BALL AND ROLLER BEARINGS —Con.				
	Mill shapes and forms, except castings and forgings—Con.				
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes mil lb..	-	-	10.2	9.1
335143	Plate, sheet, and strip, including military cups and discs do..	(D)	(S)		
335152	Pipe and tube do..	(S)	5.6	1.4	1.3
333122	Copper and copper-base alloy refinery shapes 1,000 s tons..	(D)	(D)	.8	1.6
	Scrap, excluding home scrap:				
190023	Iron and steel 1,000 s tons..	(D)	(D)	11.7	3.0
190024	Copper and copper-base alloy do..	-	-	1.5	1.2
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) 1,000 s tons..	22.9	22.9	42.8	35.1
332045	Steel do..	(S)	8.0	7.8	10.8
336002	Other nonferrous mil lb..	(S)	.8	(S)	11.2
339915	Metal powders do..	(D)	(D)	1.7	2.3
	Iron and steel forgings:				
346201	Cold 1,000 s tons..	102.0	153.8	*24.7	53.4
346209	Other do..			17.5	40.4
	Bearings, including mounted and unmounted:				
356218	Ball do..	(X)	12.0	(X)	20.9
356201	Roller do..	(X)	16.2	(X)	34.5
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts do..	(X)	350.1	(X)	178.4
329101	Grinding wheels and other abrasive products, except industrial diamonds do..	(X)	13.8	(X)	17.6
345001	Bolts, nuts, screws, rivets, and screw machine products do..	(X)	24.5	(X)	9.2
354501	Cutting tools for machine tools do..	(X)	11.6	(X)	13.8
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362110	Timing motors, synchronous and subsynchronous thousands..	(S)	.1	13.2	1.3
362115	Other fractional horsepower electric motors, excluding timing motors do..	(D)	(D)	30.3	3.6
362120	Integral horsepower motors and generators (1 hp or more) do..	(D)	(D)	9.2	1.3
280020	Ceramic raw materials, including powders, chemicals, and fibers, excluding refractory uses do..	(X)	-	(S)	(S)
320601	Ceramic and ceramic composite parts, components, and accessories do..	(X)	-	(S)	(S)
970099	All other materials and components, parts, containers, and supplies do..	(X)	254.0	(X)	*178.8
971000	Materials, parts, containers, and supplies, n.s.k. ² do..	(X)	98.9	(X)	18.5
	INDUSTRY 3563, AIR AND GAS COMPRESSORS				
	Materials, parts, containers, and supplies do..	(X)	1 334.7	(X)	1 425.7
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes 1,000 s tons..	(S)	12.7	**46.8	29.0
331012	Sheet and strip do..	(S)	26.0	(S)	26.9
331013	Plates do..	(S)	7.8	(S)	21.3
331015	Structural shapes do..	(S)	5.0	*27.5	14.9
331055	All other do..	(S)	1.8	(S)	13.7
	Alloy steel, except stainless:				
331021	Bars and bar shapes 1,000 s tons..]	7.9	(S)	23.9
331029	All other alloy steel mill shapes and forms do..			(S)	11.5
	Stainless steel:				
331033	Sheet and strip 1,000 s tons..]	51.4	**7.4	17.3
331050	All other stainless steel mill shapes and forms do..			*7.2	17.8
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes mil lb..]	4.7	**6.8	12.1
335143	Plate, sheet, and strip, including military cups and discs do..			9.7	13.4
335152	Pipe and tube do..			(S)	6.8
	Aluminum and aluminum-base alloy:				
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. mil lb..	*1.9	1.3	2.8	4.5
335007	All other (sheet, plate, foil, wire, rolled rod and bar, powder, welded tubing, etc.) do..			(D)	(D)
335609	Nonferrous metal mill shapes and forms, except copper and aluminum do..	(D)	(D)	(S)	7.1
	Primary metals:				
331051	Pig iron, excluding silvery iron 1,000 s tons..	(D)	(D)	29.4	7.9
333122	Copper and copper-base alloy refinery shapes do..	(Z)	(Z)	(D)	(S)
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content) mil lb..	(S)	1.3	6.9	13.7
339915	Metal powders do..	(D)	(D)	(S)	(S)
190023	Iron and steel scrap, excluding home scrap 1,000 s tons..	-	-	14.3	5.8
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) 1,000 s tons..	(S)	65.8	(S)	93.9
332045	Steel do..	(X)	33.1	(S)	16.0
336005	Aluminum and aluminum-base alloy mil lb..	(S)	16.9	(S)	26.7
336006	Copper and copper-base alloy do..	(S)	4.7	(S)	5.9
336008	Other nonferrous do..	(S)	3.5	(S)	5.1
346200	Iron and steel forgings 1,000 s tons..	(S)	15.1	(S)	19.0
346701	Metal stampings do..	(S)	8.0	*6.2	16.7
	Engines:				
351920	Diesel and semidiesel thousands..	*10.8	35.0	**10.1	42.6
351901	Gasoline and other carburetor engines do..	(S)	19.8	**181.9	28.6

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 3563, AIR AND GAS COMPRESSORS —Con.					
Electric motors and generators:					
362115	Fractional horsepower electric motors (less than 1 hp), excluding timing motors ----- thousands..	(S)	80.6	(S)	41.8
362120	Integral horsepower motors and generators (1 hp or more) ----- do..	(S)	60.6	(S)	79.2
Bearings, including mounted and unmounted:					
356218	Ball -----	(X)	7.7	(X)	21.3
356201	Roller -----	(X)	9.9	(X)	14.4
356810	Plain bearings and bushings -----	(X)	9.3	(X)	17.7
356601	Speed changers, drives, gears, industrial high-speed drivers -----	(X)	13.7	(X)	28.1
265001	Paperboard containers, boxes, and corrugated paperboard .. 1,000 s tons..	(S)	10.4	**16.7	13.9
305201	Rubber and plastics hose and belting -----	(X)	10.0	(X)	15.1
306902	Fabricated rubber products (except tires, tubes, belts, hosing, and gaskets) -----	(X)	1.6	(X)	8.3
308006	Fabricated plastics products (except gaskets, hose, and belting) -----	(X)	18.6	(X)	18.7
329300	Gaskets (all types) and asbestos packing -----	(X)	12.8	(X)	19.4
345001	Bolts, nuts, screws, rivets, and screw machine products -----	(X)	31.2	(X)	26.5
344301	Metal tanks, heat exchangers, steam condensers and other boiler products, fabricated steel plate, and weldments -----	(X)	71.2	(X)	68.0
349402	Fabricated metal pipe, valves, and pipe fittings -----	(X)	31.9	(X)	49.2
354501	Cutting tools for machine tools -----	(X)	8.9	(X)	16.6
356101	Pumps and pump parts used as materials -----	(X)	30.9	(X)	34.5
356301	Air and gas compressors, except refrigeration ----- thousands..	(S)	36.8	*48.4	32.4
357001	Electronic computing equipment and parts -----	(X)	4.2	(X)	17.2
360101	Electrical transmission, distribution, and control equipment -----	(X)	13.7	(X)	22.3
970099	All other materials and components, parts, containers, and supplies -----	(X)	316.8	(X)	7277.9
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	176.9	(X)	95.8
INDUSTRY 3564, BLOWERS AND FANS					
Materials, parts, containers, and supplies -----					
		(X)	860.2	(X)	854.8
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes ----- 1,000 s tons..	(S)	7.3	*42.7	24.6
331012	Sheet and strip ----- do..	**111.7	70.5	**110.3	63.2
331013	Plates ----- do..	(S)	35.2	*115.2	55.9
331015	Structural shapes ----- do..	(S)	10.5	**39.6	26.7
331017	Wire and wire products ----- do..	(S)	3.4	**49.7	16.7
331019	All other carbon steel mill shapes and forms ----- do..	(S)	4.3	**16.9	19.9
331020	Alloy steel, except stainless ----- do..	(S)	1.5	**15.1	17.9
Stainless steel:					
331033	Sheet and strip ----- 1,000 s tons..	(S)	16.9	*10.9	24.0
331050	All other stainless steel mill shapes and forms ----- do..	(S)	3.3	4.2	15.0
Copper and copper-base alloy:					
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes ----- mil lb..	2.1	2.8	4.3	9.8
335143	Plate, sheet, and strip ----- do..	(S)	1.4	*6.6	8.3
335152	Pipe and tube ----- do..	(S)	2.4	12.5	12.6
Aluminum and aluminum-base alloy:					
335301	Sheet, plate, and foil ----- mil lb..	**34.5	36.4	*25.0	28.7
335007	All other (sheet, plate, foil, wire, rolled rod and bar, powder, welded tubing, etc.) ----- do..	(S)	5.6	(S)	10.3
Castings (rough and semifinished):					
332011	Iron (gray and malleable) ----- 1,000 s tons..	(S)	18.8	21.4	22.4
332045	Steel ----- do..	(S)	17.9	5.6	12.8
336005	Aluminum and aluminum-base alloy ----- mil lb..	(S)	15.9	**7.5	17.0
336006	Copper and copper-base alloy ----- do..	1.1	1.5	3.7	8.5
336008	Other nonferrous ----- do..			4.1	8.3
345001	Bolts, nuts, screws, rivets, and screw machine products -----	(X)	11.0	(X)	23.4
Electric motors and generators:					
Fractional horsepower electric motors (less than 1 hp):					
362110	Timing motors, synchronous and subsynchronous ----- thousands..	(S)	4.7	140.4	9.9
362115	Other fractional horsepower electric motors ----- do..	**1 207.9	33.0	(S)	36.1
362120	Integral horsepower motors and generators ----- do..	(S)	37.0	(S)	38.2
Bearings, including mounted and unmounted:					
356218	Ball -----	(X)	14.4	(X)	15.0
356201	Roller -----	(X)	3.8	(X)	11.6
382201	Automatic temperature controls (thermostats, regulators, etc.) -----	(X)	4.3	(X)	14.3
305201	Rubber and plastics hose and belting -----	(X)	5.1	(X)	13.6
970099	All other materials and components, parts, containers, and supplies -----	(X)	323.4	(X)	176.3
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	168.0	(X)	113.8
INDUSTRY 3565, PACKAGING MACHINERY					
Materials, parts, containers, and supplies -----					
		(X)	640.0	(X)	(³)
Mill shapes and forms, except castings and forgings:					
Carbon steel:					
331011	Bars and bar shapes ----- 1,000 s tons..	(S)	16.8	(NA)	(NA)
331012	Sheet and strip ----- do..	(S)	5.4	(NA)	(NA)
331013	Plates ----- do..	(S)	3.1	(NA)	(NA)
331015	Structural shapes ----- do..	(S)	3.3	(NA)	(NA)
331019	All other carbon steel mill shapes and forms ----- do..	(S)	1.8	(NA)	(NA)
331020	Alloy steel, except stainless ----- do..	(S)	.9	(NA)	(NA)
Stainless steel:					
331033	Sheet and strip ----- 1,000 s tons..	(S)	19.5	(NA)	(NA)
331050	All other stainless steel mill shapes and forms ----- do..	(S)	12.2	(NA)	(NA)
335105	Copper and copper-base alloy mill shapes and forms ----- mil lb..	(S)	.1	(NA)	(NA)

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982—Con.**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3565, PACKAGING MACHINERY— Con.				
	Mill shapes and forms, except castings and forgings—Con.				
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil	(S)	4.6	(NA)	(NA)
335012	All other (extruded shapes, wire, rod, bar, powder, tubing, etc.)	(S)	2.4	(NA)	(NA)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable)	(S)	4.6	(NA)	(NA)
332045	Steel	(S)	8.6	(NA)	(NA)
336005	Aluminum and aluminum-base alloy	(S)	11.9	(NA)	(NA)
336006	Copper and copper-based alloy	(S)	1.0	(NA)	(NA)
336008	Other nonferrous	(S)	1.5	(NA)	(NA)
	Electric motors and generators:				
362115	Fractional horsepower electric motors (less than 1 hp), excluding timing motors	(S)	8.5	(NA)	(NA)
362120	Integral horsepower motors and generators (1 hp or more)	(S)	7.9	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	10.3	(NA)	(NA)
356201	Roller	(X)	2.9	(NA)	(NA)
356810	Plain bearings and bushings	(X)	3.5	(NA)	(NA)
356601	Speed changers, drives, gears, and industrial high-speed drives	(X)	10.7	(NA)	(NA)
360101	Electrical transmission, distribution, and control equipment	(X)	40.6	(NA)	(NA)
349271	Fluid power (hydraulic and pneumatic) valves	(X)	4.4	(NA)	(NA)
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	(X)	4.5	(NA)	(NA)
359412	Hydraulic fluid power pumps, motors, and hydrostatic transmissions	(S)	3.9	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies consumed	(X)	239.7	(NA)	(NA)
971000	Materials, parts, containers, supplies, n.s.k. ²	(X)	205.4	(NA)	(NA)
	INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS				
	Materials, parts, containers, and supplies	(X)	447.9	(X)	462.1
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes	(S)	24.7	(S)	24.0
331012	Sheet and strip	(S)	2.9	4.8	3.9
331013	Plates	(S)	4.9	(S)	4.9
331017	Wire and wire products	(S)	12.3	8.8	8.8
331058	All other carbon steel mill shapes and forms	(S)	6.7	6.6	9.7
	Alloy steel, except stainless:				
331021	Bars and bar shapes	(S)	24.4	(S)	24.1
331029	All other alloy steel mill shapes and forms	(S)	6.2	**7.3	9.4
	Stainless steel:				
331033	Sheet and strip	(S)	10.5	4.4	9.5
331050	All other stainless steel mill shapes and forms	(S)		**1.7	5.9
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes	(S)	4.2	2.6	6.5
335143	Plate, sheet, and strip, including military cups and discs	(D)		6.0	7.1
335152	Pipe and tube	(D)		1.5	4.5
333122	Copper and copper-base alloy refinery shapes	(D)	(D)		
	Scrap, excluding home scrap:				
190023	Iron and steel	(S)	3.1	25.6	4.7
190024	Copper and copper-base alloy	(S)			
	Castings (rough and semifinished):				
332011	Iron (gray and malleable)	(S)	49.0	(S)	39.5
332045	Steel	(S)	9.0	(S)	16.1
336002	Nonferrous	(S)	6.4	(S)	19.6
339915	Metal powders	(S)	1.2	4.0	3.6
	Iron and steel forgings:				
346201	Cold	(S)	12.1	(S)	35.6
346209	Other	**23.7	32.3	**18.5	34.1
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	11.0	(X)	12.6
356201	Roller	(X)	13.1	(X)	13.8
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts	(X)	2.7	(X)	(?)
329101	Grinding wheels and other abrasive products, except industrial diamonds	(X)	2.7	(X)	8.5
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	9.2	(X)	14.7
354501	Cutting tools for machine tools	(X)	8.2	(X)	15.6
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362110	Timing motors, synchronous and subsynchronous	(D)	(D)		
362115	Other fractional horsepower electric motors, excluding timing motors	(S)	1.1	623.5	55.3
362120	Integral horsepower motors and generators (1 hp or more)	(S)	7.6	(S)	2.2
280020	Ceramic raw materials, including powders, chemicals, and fibers, excluding refractory uses	(X)	(Z)	(?)	(?)
320601	Ceramic and ceramic composite parts, components, and accessories	(X)	(D)	(?)	(?)
970099	All other materials and components, parts, containers, and supplies	(X)	134.0	(X)	9 749.8
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	53.2	(X)	23.0

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS					
	Materials, parts, containers, and supplies	(X)	529.1	(X)	432.1
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331012	Sheet and strip 1,000 s tons..	(S)	11.8	*33.3	20.3
331013	Plates do..	*11.2	7.3	(S)	18.8
331015	Structural shapes do..	(S)	5.8	*22.6	15.1
331058	All other carbon steel mill shapes and forms..... do..	(S)	3.5	5.3	7.2
331020	Alloy steel, except stainless do..	(S)	13.1	**15.6	39.0
	Stainless steel:				
331033	Sheet and strip 1,000 s tons..	(S)	12.9	*6.8	13.5
331055	All other do..	(S)	9.3	*5.9	12.7
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes mil lb..	(S)	1.8	*5.3	10.7
335143	Plate, sheet, and strip, including military cups and discs..... do..	(S)	.3	7.0	9.5
335152	Pipe and tube do..	(S)	6.6	8.0	8.0
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil mil lb..	(S)	5.1	6.2	7.6
335007	All other (sheet, plate, foil, wire, rolled rod and bar, powder, welded tubing, etc.) do..	(S)	6.5	10.9	6.5
332045	Steel castings (rough and semifinished) 1,000 s tons..	(S)	11.0	(S)	10.1
360101	Electrical distribution, transmission, and control equipment	(X)	46.8	(X)	44.9
356751	Electric heating elements for industrial furnaces, ovens, and kilns do..	(X)	15.7	(X)	17.0
343371	Oil and gas burners for industrial furnaces, ovens, and kilns	(X)	3.2	(X)	7.8
356753	Parts specifically designed for industrial furnaces, ovens, and kilns (not listed above) do..	(X)	37.8	(X)	33.0
280020	Ceramic raw materials, including powders, chemicals, and fibers, excluding refractory uses do..	(X)	4.3	(⁶)	(⁶)
320601	Ceramic and ceramic composite parts, components, and accessories do..	(X)	4.1	(⁶)	(⁶)
970099	All other materials and components, parts, containers, and supplies..... do..	(X)	192.0	(X)	*104.2
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	130.2	(X)	46.2
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.					
	Materials, parts, containers, and supplies	(X)	645.1	(X)	649.7
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes 1,000 s tons..	**87.1	50.7	**85.9	56.6
331012	Sheet and strip do..	(S)	28.2	**58.1	34.6
331013	Plates do..	**72.6	34.9	64.2	28.9
331017	Wire and wire products do..	5.3	1.9	29.5	13.8
331058	All other carbon steel mill shapes and forms..... do..	(S)	6.4	23.4	8.3
	Alloy steel, except stainless:				
331021	Bars and bar shapes 1,000 s tons..	(S)	15.6	**17.2	17.7
331029	All other alloy steel mill shapes and forms..... do..	**2.4	6.8	(S)	9.0
	Stainless steel:				
331033	Sheet and strip 1,000 s tons..	(S)	15.2	*3.7	9.8
331050	All other stainless steel mill shapes and forms..... do..	(S)	5.7	(S)	8.2
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes mil lb..	*2.5	3.7	(S)	5.7
335143	Plate, sheet, and strip, including military cups and discs..... do..	.2	.3	4.8	3.2
335152	Pipe and tube do..	(S)	8.9	3.4	3.1
333122	Copper and copper-base alloy refinery shapes 1,000 s tons..	(S)	8.5	7.1	9.5
	Scrap, excluding home scrap:				
190023	Iron and steel 1,000 s tons..	(S)	4.8	11.2	1.8
190024	Copper and copper-base alloy do..	(S)	3.0	3.7	3.7
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) 1,000 s tons..	(S)	51.2	**72.7	68.9
332045	Steel do..	(S)	12.8	(⁶)	(⁶)
336002	Other nonferrous mil lb..	(S)	7.6	*54.5	*53.9
339915	Metal powders do..	(S)	4.1	(S)	5.5
	Iron and steel forgings:				
346201	Cold 1,000 s tons..	(S)	23.2	(S)	22.6
346209	Other do..	(S)	17.0	17.1	25.9
	Bearings, including mounted and unmounted:				
356218	Ball do..	(X)	6.7	(X)	18.5
356201	Roller do..	(X)	9.0	(X)	15.3
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components, and parts do..	(X)	8.2	(X)	11.6
329101	Grinding wheels and other abrasive products, except industrial diamonds do..	(X)	2.1	(X)	3.2
345001	Bolts, nuts, screws, rivets, and screw machines products	(X)	14.4	(X)	25.1
354501	Cutting tools for machine tools do..	(X)	7.9	(X)	11.3
	Electric motors and generators:				
362110	Fractional horsepower electric motors (less than 1 hp):				
362115	Timing motors, synchronous and subsynchronous thousands..			22.3	2.1
	Other fractional horsepower electric motors, excluding timing motors do..	*21.6	15.2	(S)	6.3
362120	Integral horsepower motors and generators (1 hp or more) do..			(S)	3.4
280020	Ceramic raw materials, including powders, chemicals, and fibers, excluding refractory uses do..	(X)	(⁷)	(⁶)	(⁶)
320601	Ceramic and ceramic composite parts, components, and accessories do..	(X)	1.7	(⁶)	(⁶)
970099	All other materials and components, parts, containers, and supplies..... do..	(X)	*194.8	(X)	*124.3
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	74.6	(X)	37.9

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.				
	Materials, parts, containers, and supplies -----	(X)	1 359.9	(X)	(³)
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons..	(S)	11.7	(NA)	(NA)
331012	Sheet and strip ----- do..	*58.5	17.2	(NA)	(NA)
331013	Plates ----- do..	(S)	19.5	(NA)	(NA)
331015	Structural shapes ----- do..	(S)	12.2	(NA)	(NA)
331017	Wire and wire products ----- do..	(S)	6.4	(NA)	(NA)
331019	All other carbon steel shapes and forms ----- do..	(S)	8.3	(NA)	(NA)
	Alloy steel, except stainless:				
331021	Bar and bar shapes ----- 1,000 s tons..	(S)	4.2	(NA)	(NA)
331029	All other alloy steel mill shapes and forms ----- do..	**3.7	3.7	(NA)	(NA)
	Stainless steel:				
331033	Sheet and strip ----- 1,000 s tons..	(S)	13.7	(NA)	(NA)
331050	All other stainless steel mill shapes and forms ----- do..	**14.5	24.1	(NA)	(NA)
	Copper and copper-base alloy:				
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes ----- mil lb..	**1.0	1.4	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs ----- do..	*1.4	2.9	(NA)	(NA)
335152	Pipe and tube ----- do..	(S)	6.3	(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ----- mil lb..	(S)	7.2	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ----- do..	(S)	3.9	(NA)	(NA)
335007	All other (wire, rolled rod and bar, powder, welded tubing, etc.) ----- do..	(S)	2.4	(NA)	(NA)
	Primary metals and scrap:				
331051	Pig iron, excluding silvery iron ----- 1,000 s tons..	(S)	(Z)	(NA)	(NA)
190023	Iron and steel scrap, excluding home scrap ----- do..	**1	.1	(NA)	(NA)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) ----- 1,000 s tons..	(S)	28.0	(NA)	(NA)
332045	Steel ----- do..	(S)	31.0	(NA)	(NA)
336005	Aluminum and aluminum-base alloy ----- mil lb..	(S)	12.3	(NA)	(NA)
336006	Copper and copper-base alloy ----- do..	(S)	10.0	(NA)	(NA)
336008	Other nonferrous ----- do..	(S)	8.2	(NA)	(NA)
	Electric motors and generators:				
362115	Fractional horsepower electric motors, (less than 1 hp), excluding timing motors ----- thousands..	**466.6	19.5	(NA)	(NA)
362120	Integral horsepower motors and generators (1 hp or more) ----- do..	(S)	17.7	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball -----	(X)	4.0	(NA)	(NA)
356201	Roller -----	(X)	3.9	(NA)	(NA)
356810	Plain bearings and bushings -----	(X)	1.4	(NA)	(NA)
356601	Speed changers, gears, and industrial high-speed drives -----	(X)	19.4	(NA)	(NA)
345001	Bolts, nuts, screws, rivets, and screw machine products -----	(X)	11.5	(NA)	(NA)
344301	Metal tanks, heat exchangers, steam condensers, and other boiler-shop products; fabricated steel plate weldments -----	(X)	12.8	(NA)	(NA)
349402	Fabricated metal pipe, valves, and pipe fittings -----	(X)	22.5	(NA)	(NA)
335609	Nonferrous metal mill shapes and forms, except copper and aluminum -----	(X)	(D)	(NA)	(NA)
360101	Electrical transmission, distribution, and control equipment -----	(X)	15.5	(NA)	(NA)
346901	Metal-stampings -----	(X)	7.2	(NA)	(NA)
356101	Pumps and pump parts -----	(X)	6.3	(NA)	(NA)
356301	Air and gas compressors, except refrigeration compressors -----	(X)	2.8	(NA)	(NA)
349271	Fluid power (hydraulic and pneumatic) valves -----	(X)	4.8	(NA)	(NA)
359301	Fluid power (hydraulic and pneumatic) cylinders and rotary actuators -----	(X)	4.3	(NA)	(NA)
359412	Fluid power (hydraulic only) fluid power pumps and motors -----	(X)	5.3	(NA)	(NA)
356921	Filters for hydraulic fluid power systems -----	(X)	(D)	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies -----	(X)	464.4	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	487.9	(NA)	(NA)

¹For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

³Industry definition is new for 1987; therefore, 1987 data for materials consumed are not comparable to prior-year data. As a result, 1982 materials consumed data are not available.

⁴For 1987, data for material code 331013 are combined with material code 331058 to avoid disclosing data for individual companies.

⁵For 1987, data for material code 335143 are combined with material code 335152 to avoid disclosing data for individual companies.

⁶In 1982, data for these material codes were not collected separately, but included with material code 970099.

⁷Data for these material codes have been combined with material code 970099 to avoid disclosing data for individual companies.

⁸For 1987, data for material code 335152 are combined with material code 335102 to avoid disclosing data for individual companies.

⁹For 1982, data for material code 332045 were combined with material code 336002 to avoid disclosing data for individual companies.

APPENDIX

Scope and Coverage and Explanation of Terms

GENERAL

The 1987 Census of Manufactures is the 32nd census of manufacturing establishments conducted in the United States. For 1987, it was conducted as part of the economic censuses, which included the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses, under authority of title 13 of the United States Code. Title 13 specifies that an economic census be conducted every 5 years to cover years ending in 2 and 7.

SCOPE AND COVERAGE

Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. All manufacturing establishments with one paid employee or more at any time during the year are covered by the census of manufactures. Therefore, a company operating at more than one location is required to file a separate report for each location. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units which service manufacturing establishments of the same company. Where these auxiliary operations are conducted at the same location as the manufacturing operation, they are usually included in the report for the operating manufacturing establishment.

Use of Administrative Records

From a universe of approximately 350,000 manufacturing establishments in the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of the small establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so the administrative-record cases would account for approximately 3 percent or less of the value of shipments for the industry. These cutoffs were then adjusted so that all single-establishment companies with less than 5 employees were excluded from the mail canvass, while all establishments with more than 20 employees were included. Where establishments in the 5 to 20 employee size range were included in the mail canvass, an abbreviated census form was frequently used.

For these nonmail establishments, (and a small number of larger establishment whose reports were not received at the time the data were tabulated) data on employment, payroll, and receipts were obtained from administrative records of other government agencies rather than from census forms. The administrative-record information was then used in conjunction with industry averages to estimate the data for these establishments. The value of shipments and cost of materials were not distributed among specific products and materials but were included in the product and material "not specified by kind" (n.s.k.) categories.

EXPLANATION OF TERMS

Number of establishments and companies—A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

All employees—Includes all full-time and part-time employees on the payrolls at any time during the year. Included are all persons on paid sick leave, paid holidays, and paid vacations. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average of those for midmonth payroll periods of March, May, August, and November.

Production workers—Includes workers up through the working-supervisor level engaged in fabricating, processing, assembling, inspecting, receiving, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial, guard services, product development, auxiliary production for plant's own use (e.g., power-plant), recordkeeping, and other closely associated services. Truckdrivers delivering ready-mixed concrete are also included in production workers.

Other employees—Includes nonproduction personnel, including those engaged in the following activities: supervision above working-supervisor level, sales (including driver/salespersons), sales delivery (truckdrivers and helpers), advertising, credit collection, installation and

servicing of own product, clerical and routine office functions, executive, purchasing, finance, legal, personnel (including cafeteria, etc.), professional, and technical employees.

Payroll—Includes the gross earnings for the “employees” defined above, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees’ Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Respondents were told that in reporting they could follow the definition of payrolls used for calculating the Federal withholding tax.

Production-worker hours—Covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave when the employee was not at the plant.

Cost of materials—Refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuels consumed, regardless of whether they were purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (a) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) electric energy purchased; (c) fuels consumed for heat, power, or generating electricity; (d) work done by others on materials or parts furnished by manufacturing establishments (contract work); and (e) products bought and resold in the same condition.

Specific materials consumed (table 3)—In addition to the total cost of materials which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. These inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers’ records. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which administrative records were used was estimated as “not specified by kind” (n.s.k.).

Value of shipments and other receipts—Generally refers to received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all

miscellaneous receipts such as receipts for contract work performed for others, installation and repair receipts, sale of scrap, and sale of products bought and resold without further processing. Included are all items made by or for the establishment from materials owned by it whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In a few industries, the value of production or value of work completed is used instead of value of shipments. These industries are identified in the introduction and are footnoted in table 1.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, that is, including not only the direct costs of production but also a reasonable proportion of “all other costs” (including company overhead and profit).

Shipments or production of individual products (table 2)—In the 1987 census, detailed shipment information was collected for approximately 11,000 individual products. These products are identified by a seven-digit code and are grouped into approximately 1,500 classes of products, which in turn are primary to 459 four-digit industries. Data at the five-digit product-class level have been collected each year as part of the annual survey of manufactures. Information at the seven-digit level, collected for many industries in the current industrial reports program, is not included in this table.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments for products manufactured plus receipts for services rendered. The result of this calculation is then adjusted by the addition of value added by merchandising operations (that is, the difference between the sales value and cost of merchandise sold without further manufacturing, processing, or assembly) plus the net change in finished goods and work-in-process inventories between the beginning and end of the year.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1), value added is adjusted only for the change in work-in-process inventories between the beginning and end of the year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

Value added avoids the duplication in the figure for value of shipments which results from the use of products of some establishments as materials by others. Value

added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

Expenditures for new plant and equipment—Establishments in operation and any known plants under construction were asked to report their expenditures for (a) permanent additions and major alterations to manufacturing establishments and (b) new machinery and equipment used for replacement and additions to plant capacity if they are of the type for which depreciation accounts are ordinarily maintained.

These totals exclude expenditures for used plant and equipment, expenditures for land, and cost of maintenance and repairs charged as current operating expenses. Data for used plant and equipment will be published in the final industry bulletin.

End-of-year inventories—Comprised of (a) finished products; (b) work-in-process; and (c) materials, supplies, fuels, etc. Beginning in 1982, respondents were asked to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method.

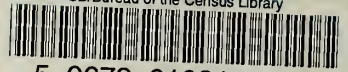
Therefore, 1982 through 1987 data for inventories are not strictly comparable to prior-year data.

Specialization and coverage ratios—An establishment is classified in a particular industry if its shipments of primary products of the industry exceed in value its shipments of the products of any other single industry. An establishments' shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). The following ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in table 1 and data on product shipments shown in table 2.

Specialization ratio—Represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio—Represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments, wherever classified.

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